

What is claimed is:

1. An optical head performing recording and/or reproducing of a signal to an optical recording medium, comprising:
 - a light source;
 - an objective lens converging the light emitted from the light source to the optical recording medium; and
 - objective lens tilting mechanism for tilting the objective lens in order to correct aberration generated when the optical recording medium is tilted, wherein the optical head is assembled so that a direction of the coma aberration of the objective lens itself perpendicularly crosses a direction tilted by the objective lens tilting mechanism.
2. The optical head according to claim 1, wherein the objective lens tilting mechanism tilts the objective lens in the radial direction to correct aberration generated when the optical recording medium is tilted and the optical head is assembled so as to orient the direction of the coma aberration of the objective lens toward a tangential direction.
3. The optical head according to claim 1, wherein the objective lens tilting mechanism tilts the objective lens in a tangential direction to correct aberration generated when the optical recording medium is tilted and the optical head is assembled so as to orient the direction of the coma aberration of the objective lens toward a radial direction.

4. The optical head according to claim 1, wherein a mark designating the coma aberration is made on the objective lens.

5. The optical head according to claim 4, wherein the mark made on the objective lens is oriented toward a tangential direction.

6. The optical head according to claim 4, wherein the mark made on the objective lens is oriented toward a radial direction.

7. The optical head according to claim 4, wherein the mark designating the coma aberration of the objective lens is provided on a side surface of the objective lens.

8. The optical head according to claim 4, wherein the mark designating the coma aberration of the objective lens is provided outside an effective diameter on an upper surface of the objective lens.

9. The optical head according to claim 1, wherein the mark made on the objective lens designates a direction and an amount of the coma aberration.

10. The optical head according to claim 9, wherein the mark made on the objective lens is distinguished by using different colors and the amount of the coma aberration is designated by the kind of the color.

11. The optical head according to claim 1, wherein NA of the objective lens is 0.6 or more.

12. The optical head according to claim 1, further comprising tilt detecting device for detecting information referring to the tilt of the optical recording medium.

13. The optical head according to claim 12, wherein the tilt detecting device comprises:

a light source;

a lens converging the light emitted from the light source to the optical recording medium; and

a light detector detecting the light reflected from the optical recording medium.

14. The optical head according to claim 12, wherein the tilt detecting device is a device for detecting a focus search voltage at any position of the objective lens and detecting the tilt of the optical recording medium based on the focus search voltage.

15. The optical head according to claim 1, further comprising device for correcting aberration caused by a substrate thickness, which corrects aberration generated when the substrate thickness of the optical recording medium is shifted from a standard value, wherein the device for correcting aberration caused by the substrate thickness corrects the aberration

generated when the substrate thickness of the optical recording medium is shifted from the standard value.

16. The optical head according to claim 15, wherein the device for correcting the aberration caused by the substrate thickness further corrects spherical aberration generated when the objective lens is tilted.

17. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 1.

18. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 2.

19. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 3.

20. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the

signal to the optical recording medium according to claim 4.

21. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 5.

22. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 6.

23. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 7.

24. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 8.

25. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the

signal to the optical recording medium according to claim 9.

26. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 10.

27. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 11.

28. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 12.

29. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 13.

30. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the

signal to the optical recording medium according to claim 14.

31. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 15.

32. An optical recording and reproducing apparatus performing recording and/or reproducing of a signal to an optical recording medium, comprising the optical head performing recording and/or reproducing of the signal to the optical recording medium according to claim 16.